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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/660,884	09/12/2000	Takashi Akahori	08038.0038	7052

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT PAPER NUMBER

2826

7

DATE MAILED: 01/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/660,884

Applicant(s)

AKAHORI ET AL.

Examiner

Alexander O Williams

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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Serial Number: 09/660884 Attorney's Docket #: 08038.0025  
Filing Date: 9/12/00; claimed foreign priority to 5/7/98

Applicant: Akahori et al.

Examiner: Alexander Williams

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2 and 5 are rejected under 35 U.S.C. § 102(b) as being anticipated by (Japan Patent Application # 9-246242).

For example, in claim 1, (Japan Patent Application # 9-246242) (figures 1 to 11) specifically figure 7 show a semiconductor device comprising: a substrate **21**; an insulating film **2312** of a fluorine-containing carbon film formed on said substrate; and a wiring layer **261** of copper formed on said insulating film.

For example, in claim 2, (Japan Patent Application # 9-246242) (figures 1 to 11) specifically figure 7 show a semiconductor device comprising: a substrate **21**; an insulating film **2312** of a fluorine-containing carbon film formed on said substrate; a wiring layer **261** of copper formed on said insulating film; an adhesion layer **251** formed between said insulating film and said wiring layer, for preventing said wiring layer from being peeled off from said insulating film.

Claims 1, 2 and 5 are rejected under 35 U.S.C. § 102(b) as being anticipated by (Japan Patent Application # 9-246264).

For example, in claim 1, (Japan Patent Application # 9-246264) (figures 1 to 3) specifically figure 1 show a semiconductor device **10** comprising: a substrate **12**; an insulating film **18** of a fluorine-containing carbon film formed on said substrate; and a wiring layer **16** of copper formed on said insulating film.

For example, in claim 2, (Japan Patent Application # 9-246264) (figures 1 to 3) specifically figure 3 show a semiconductor device **50** comprising: a substrate **52**; an insulating film **58** of a fluorine-containing carbon film formed on said substrate; a wiring layer **54** of copper formed on said insulating film; an adhesion layer **60** formed between said insulating film and said wiring layer, for preventing said wiring layer from being peeled off from said insulating film.

Claims 1 to 9 are rejected under 35 U.S.C. § 102(e) as being anticipated by Matsubara et al. (U.S. Patent # 6,091,081).

For example, in claim 1, Matsubara (figures 1 to 25) specifically figure 12 show a semiconductor device comprising: a substrate **1**; an insulating film of a fluorine-containing carbon film **43** formed on said substrate; and a wiring layer of copper **8** formed on said insulating film.

For example, in claim 2, Matsubara (figures 1 to 25) specifically figure 12 show a semiconductor device comprising: a substrate **1**; an insulating film of a fluorine-containing carbon **43** film formed on said substrate; a wiring layer of copper **8** formed on said insulating film; an adhesion layer **44**, formed between said insulating film and said wiring layer, for preventing said wiring layer from being peeled off from said insulating film.

As to claims 6 to 9, Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claims 1 to 9 are rejected under 35 U.S.C. § 102(e) as being anticipated by Matsumoto et al. (U.S. Patent # 5,866,920).

For example, in claim 1, Matsumoto et al. (figures 1 to 7 to 8h) specifically figure 7 show a semiconductor device comprising: a substrate **21**; an insulating film of a fluorine-containing carbon film **231** formed on said substrate; and a wiring layer of copper **271** formed on said insulating film.

For example, in claim 2, Matsumoto et al. (figures 1 to 7 to 8h) specifically figure 7 show a semiconductor device comprising: a substrate **21**; an insulating film of a fluorine-containing carbon **231** film formed on said substrate; a wiring layer of copper **271** formed on said insulating film; an adhesion layer **241**, formed between said insulating film and said wiring layer, for preventing said wiring layer from being peeled off from said insulating film.

As to claims 6 to 9, Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claims 3, 4 and 6 to 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over (Japan Patent Application # 9-246242).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claims 3 and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over (Japan Patent Application # 9-246264) in view of Hoshino (U.S. Patent # 4,985,750).

(Japan Patent Application # 9-246264) show the features of the claimed invention as detailed above, but fail to explicitly show an adhesion layer comprising a metal layer of a metal and a layer of a compound containing carbon and said metal and the metal being titanium.

Hoshino is cited for showing a semiconductor device using copper metallization. Specifically, Hoshino discloses (figures 2) discloses an adhesion layer **18a** comprising a metal layer of a metal and a layer of a compound containing carbon and said metal and the metal being titanium for the purpose of provide a semiconductor device, in which a leakage current which flows from a diffused layer formed in a silicon substrate is limited.

Therefore, it would have been obvious to one of ordinary skill in the art to use Hoshino's metal to modify (Japan Patent Application # 9-246264)'s metal for the purpose of provide a semiconductor device, in which a leakage current which flows from a diffused layer formed in a silicon substrate is limited.

Claims 6 to 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over (Japan Patent Application # 9-246264).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990)

The listed references are cited as of interest to this application, but not applied at this time.

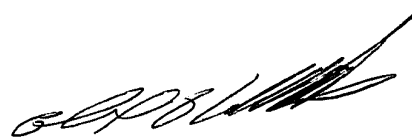
Field of Search	Date
U.S. Class and subclass: 257/762,758,700,701,774,751,759,760,763,764,767,773	1/12/02
Other Documentation: foreign patents and literature in 257/762,758,700,701,774,751,759,760,763,764,767,773	1/12/02
Electronic data base(s): U.S. Patents EAST	1/12/02

*Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to Technology Center 2800 via the Technology Center 2800 Fax center located in Crystal Plaza 4-5B15. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center 2800 Fax Center number is (703) 308-7722 or 24. Only Papers related to Technology Center 2800 APPLICATIONS SHOULD BE FAXED to the GROUP 2800 FAX CENTER.*

Any inquiry concerning this communication or any earlier communication from the examiner should be directed to **Examiner Alexander Williams** whose telephone number is **(703) 308-4863**.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center 2800 receptionist** whose telephone number is **(703) 308-0956**.

1/13/02



Primary Examiner  
Alexander O. Williams